costs, and overstates the revenues that would be generated from additional subscribers.

3. In commenting on the flaws in this portion of the CPUC's analysis, I rely on information contained in the revised CPUC petition and in the studies on which the CPUC relies. I have not investigated whether the data in those studies are accurate.

4. *First,* the CPUC drew its cost figures from a March 1992 Congressional Budget Office (CBO) report, *Auctioning Radio Spectrum Licenses,* which in turn drew its information on costs from estimates and forecasts in an April 1991 Morgan Stanley investment analysis (Edward M. Greenberg and Catherine M. Lloyd, *Telecommunications Services: POP Out: The Changing Dynamics of the Cellular Telephone Industry*). Greenberg and Lloyd generally rely on data from 1989 and various assumptions to arrive at forecasts for costs in 1993 for McCaw-controlled systems nationwide. The CPUC's 1993 revenue figure, by contrast, pertains only to Los Angeles and San Francisco. The CPUC's comparison of costs and revenues therefore depends on the accuracy of Greenberg and Lloyd's forecasts, and on the CPUC's assumption that revenues for Los Angeles and San Francisco can be compared to costs for McCaw systems nationwide. Such a comparison will be biased to the extent that costs in Los Angeles and San Francisco are different than costs averaged across all McCaw systems.

5. *Second,* the CPUC computes the interest cost of fixed capital based on an assumption that the cost of capital is 10 percent per year. The 10 percent annual cost of capital is likely to understate the true cost.

6. *Third,* aside from capital costs, the only cost included by the CPUC in calculating operating profits is $10 per subscriber per month, which is identified as "the variable operating cost of providing cellular service." While the CPUC cites the CBO report as its source, the CBO report actually states that "operating costs of providing service to a subscriber are $6 to $10 a month *plus $.05 for a minute of service*" (CBO at 26, emphasis added). Greenberg and Lloyd state that the costs in question include

billing, customer service, and access fees. Using a fixed component of $8 per month and the CPUC's assumption of 120 minutes of service per month for new subscribers, this implies customer operating costs of $14 per subscriber per month, not the $10 figure used by the CPUC.

7. *Fourth*, the CPUC's calculation ignores costs associated with the use of scarce spectrum (see my Sept. 19, 1994, declaration in this docket at ¶¶63-66). The scarcity of spectrum implies that additional use of the system imposes one or both of two costs on the carrier: (i) congestion costs, including blocked and dropped calls, which reduce the prices the carrier can charge for its services, and (ii) investment costs that enable the system to economize on the use of spectrum.

8. *Fifth*, the CPUC states that selling costs are estimated at $300 per new customer. According to Greenberg and Lloyd, these selling costs are commissions paid to agents that sign up new subscribers. The CPUC ignores the fact that an increase in the number of subscribers does not involve simply a once-and-for-all payment of a sales commission. Cellular systems have high churn rates. Greenberg and Lloyd (at 43) forecast McCaw's 1993 churn rate at 2.1 percent per month. For a system that is in a steady state, this implies a monthly average cost of $6.30 per subscriber (2.1 percent of $300) merely for sales commissions to maintain the number of subscribers. In addition, interests costs at 10 percent per year (the CPUC's assumed interest rate) on the initial $300 investment per subscriber would amount to an additional $2.50 per subscriber per month. Thus, the cost of sales commissions would average $8.80 per month across all subscribers.

9. *Sixth*, there are marketing costs beyond the $300 commission paid for a new subscriber, for example, costs of direct mail, telemarketing, and advertising that are required to add and retain subscribers. Greenberg and Lloyd (at 44) forecast that these additional marketing costs would average $14.20 per subscriber per month for McCaw in 1993. The CPUC has ignored these costs.

10. *Seventh*, the CPUC has ignored the fact that in order to sign up new customers, carriers typically offer free air time and customer equipment discounts. This implies that the CPUC has overstated revenues and understated costs.

11. Suppose one were to correct all the preceding errors in the CPUC's calculation. Even if average revenues were to exceed average variable costs (that is, costs that depend on number of subscribers or on usage) for the new subscribers that a carrier has recently signed up, this does not imply that cellular systems have too few subscribers or that usage is too low. The relevant question is whether there are additional customers that have not yet subscribed that would be willing to pay the additional costs that would be required in order for a carrier to add and retain them as subscribers and to provide them with service. Compared to revenues and costs for recent subscribers, the revenue earned from an additional subscriber would be lower, the costs associated with an additional subscriber would be higher, or both. For example:

- Because they are not already subscribing to cellular service, one can infer that typically potential additional customers do not value cellular subscriptions as much as customers that have recently subscribed. Consequently, if they sought to attract additional customers, carriers might reduce prices and increase the amount of free air time given to new subscribers. Furthermore, monthly minutes of use by additional subscribers would tend to be lower than monthly usage for customers that have recently subscribed. This is because, other things equal, customers that would use larger amounts of service appear to be more likely to subscribe to cellular service than are customers that would use lower amounts of service. This is consistent with the fact that the average number of minutes of use of cellular service per subscriber has declined as the penetration rate for cellular service has increased (Greenberg and Lloyd at 20-21). For all of these reasons, carriers would earn less revenue from each addi-

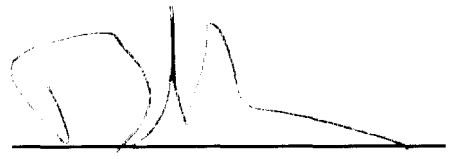
tional subscriber than they were earning from other recent subscribers.

- If they sought to attract and retain additional customers, carriers might also offer higher sales commissions and larger customer equipment discounts, and they might spend more on direct mail, telemarketing, and advertising. As a result, the cost of each additional subscriber would be greater than the cost of other recent subscribers.

- Additional usage is likely to have progressively higher congestion costs, or to require progressively higher capital expenditures per additional customer to avoid an increase in congestion.

12. In summary, the CPUC has badly mishandled the evidence, drawing conclusions at least partly on the basis of a deeply flawed analysis. The CPUC's performance undermines its arguments in support of continued rate regulation and casts doubt on the adequacy of its tools for administering a sensible system of regulation.

I declare under penalty of perjury that the foregoing is true and correct.



Bruce M. Owen

October 19, 1994

CERTIFICATE OF SERVICE

I, Kecia Boney, do hereby certify that a copy of the foregoing Reply of McCaw Cellular Communications Corporation was served on the following by hand or first class mail, postage prepaid this 19th day of October 1994:

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